

AMENDMENTS TO THE CLAIMS

1. (amended) A method of for producing ~~one or more~~ complex hydride compounds capable of reversible hydrogenation, comprising:

~~mechanically mixing processing a alkali metal hydride mixture of NaH powder, with aluminum powder, and a powder of a transition metal catalyst compound selected from the list consisting of TiCl<sub>3</sub>, TiF<sub>3</sub>, and mixture thereof, in order a high energy refractory ball mill for about 2 hours~~ to provide a compounded powder mixture; and

hydrogenating said compounded mixture at an elevated temperature and pressure to provide ~~one of more alkali metal-aluminum hydride compounds comprising NaAlH<sub>4</sub> and~~ Na<sub>3</sub>AlH<sub>6</sub>.

2. (canceled)

3. (canceled)

4. (amended) The method according to claim 21, wherein the molar ratio of ~~said alkali metal hydride the NaH powder~~ to said aluminum powder is 1:1 to 4:1.

5. (amended) The method according to claim 31, wherein said molar ratio of the transition metal catalyst compound to the ~~alkali metal hydride NaH powder~~ is 1:20 to about 1:100.

6. (canceled)

7. (canceled)

8. (amended) The method according to claim 1, wherein said step of mechanically mixing processing is carried out in an atmosphere consisting essentially of argon.

9. (canceled)

10. (original) The method according to claim 1, wherein said step of hydrogenation is performed at an initial temperature of above about 60°C, and wherein said hydrogen pressure is maintained above an equilibrium plateau pressure for hydrogen at said initial temperature.

11. (amended) The method according to claim 410, wherein said step of hydrogenation is performed at an initial temperature about 125°C, and wherein said hydrogen pressure is maintained at about 100 atmospheres and for at least about 2 hours.

12. (amended) A method of for producing ~~one or more~~ complex hydride compounds capable of reversible hydrogenation, comprising:

mechanically mixing processing a mixture of a comminuted form of an alkali sodium metal, ~~with~~ aluminum powder, and a powder of a transition metal catalyst compound selected from the list consisting of TiCl<sub>3</sub>, TiF<sub>3</sub>, and mixture thereof, in order a high energy refractory ball mill for about 2 hours to about 3 hours to provide a compounded powder mixture; and

hydrogenating said compound mixture at an elevated temperature and pressure to provide an alkali metal aluminum complex hydride compounds comprising NaAlH<sub>4</sub> and Na<sub>3</sub>AlH<sub>6</sub>.

13. (canceled)

14. (canceled)

15. (amended) The method according to claim 1312, wherein the molar ratio of the alkali sodium metal to the aluminum is 1:1 to 4:1, and wherein about 10% of said sodium metal is added step-wise to the mixture at intervals of about 20 minutes each.

16. (amended) The method according to claim 1412, wherein said molar ratio of the transition metal catalyst compound to the alkali sodium metal is 1:6 to about 1:100.

17. (canceled)

18. (canceled)

19. (amended) The method according to claim 12, wherein said step of mechanically mixing processing is carried out in an atmosphere consisting essentially of argon.

20. (canceled)

**21.** (original) The method according to claim **12**, wherein said step of hydrogenation is performed at an initial temperature above about 60°C, and wherein said hydrogen pressure is maintained above an equilibrium plateau pressure for hydrogen at said temperature.

**22.** (amended) The method according to claim **12**, wherein said step of hydrogenation is performed at an initial temperature of about 125°C, and wherein said hydrogen pressure is maintained at about 100 atmospheres for at least about 2 hours.

**23.** (canceled)

**24.** (canceled)

**25.** (canceled)

**26.** (canceled)